

Strand: Data Management & Probability
School: Centennial Sr. and Sir William Gage

Grade: 6

Lesson Goal	Introduce experimental probability and connect it to theoretical.
Curriculum Expectations	- Predict the frequency of an outcome of a simple probability experiment or game, by calculating and using the theoretical probability of that outcome
Big Idea(s)	The difference between experimental and theoretical probability. Experimental probability approaches theoretical probability as more samples are used.

3 Part Lesson Plan		Materials
Getting Started (Minds On...)		
Instructional Grouping: Whole Class <ul style="list-style-type: none"> - Students are asked to imagine that a new student is about to join the class. What is the likelihood of each of the following statements (adapted from page 159 of Good Questions by Marian Small): <ul style="list-style-type: none"> ▪ The student is a boy ▪ The student is the same age as many other students in the class ▪ The student is 20 years old ▪ The student cheers for the Maple Leafs ▪ The student lives on Mill Street ▪ The student likes school ▪ The student is South Asian ▪ The student has an annoying brother or sister ▪ The student likes chocolate covered ants - The questions are shown on the lcd screen and students are asked to use the terms impossible, unlikely, equally likely, likely and certain (written on the board for reference) and to justify their choice. 		- Lcd
Working On It (Action!)		
Instructional Grouping: Pairs <ul style="list-style-type: none"> - Students are told that they will be receiving three envelopes marked A, B, and C. One of the envelopes will contain 2 yellow/8 blue tiles, one will contain 8 yellow/2 blue tiles, and one will contain 5 yellow/5 blue tiles. They do not know what combination is in each envelope. Without looking, they will remove one tile at a time and tally their results on a worksheet, then <i>put the tile back</i> in the bag. - After removing 1 tile, they will record their prediction as to what bag of tiles they have. They will then draw 4 more tiles and record a second prediction. They will then draw 5 more tiles, for a total of 10, and record their final prediction on the worksheet. - Students will then complete the second side of the worksheet, in pairs, justifying their predictions. 		<ul style="list-style-type: none"> - Envelopes marked A, B, and C with yellow and blue tiles - Square tiles - Worksheet (attached below)
Reflecting and Connecting (Consolidate/Debrief)		
Debrief Strategy: Whole class discussion <ul style="list-style-type: none"> - The teacher asks pairs to join up with another pair to discuss their results. - The teacher debriefs the activity with the whole class asking questions such as: How did students make their predictions? Did they change their predictions after 1 tile? 5 tiles? 10 tiles? - The teacher then lets students know which bags contained which tile combinations 		

- Teacher makes connections between theoretical and experimental probability	
Follow-up	
Exit cards with two questions: 1. Imagine you flip a coin 5 times. You get heads all 5 times. Is there something wrong with your experiment? 2. What is the difference between theoretical and experimental probability? Are they always the same? Are they never the same? Explain using examples.	

Worksheet below ↓

Experimental Probability



Pull one tile from the bag at a time.

Show the colour of the tile to each person in the group.

Return the tile to the bag. Attempt to predict the tiles in each bag. Are you able to make a prediction. Why or why not?

Repeat this 5 times. Tally your results.

Blue	Yellow
Bag A Your prediction after 1 tile _____ , 5 tiles _____ after 10 tiles _____.	Bag A
Bag B Your prediction after 1 tile _____ , 5 tiles _____ after 10 tiles _____.	Bag B
Bag C Your prediction after 1 tile _____ , 5 tiles _____ after 10 tiles _____.	Bag C

How many yellow tiles are in each bag..... 2, 5, or 8?

Bag A



Bag B



Bag C



How did you make your predictions? Use the results from your experiment to justify your answer. Use pictures, numbers, and/or words.
